

What is claimed is:

1. An isolated polynucleotide comprising:
- (a) SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20;
- 5 (b) a fragment of at least 15 contiguous nucleobases of SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20,
- (c) a nucleic acid sequence which, due to degeneracy in genetic coding, comprises variations in nucleotide sequence
- 10 as compared to SEQ ID NO: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20, but which still encodes the same protein; or
- (d) a nucleic acid sequence which hybridizes under stringent conditions to an antisense sequence of SEQ ID NO:
- 15 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19 or 20.
2. An antisense oligonucleotide which hybridizes to a polynucleotide of claim 1.
3. A vector comprising the polynucleotide of claim 1.
4. A host cell expressing the vector of claim 3.
5. A method for producing a MSG polypeptide comprising culturing the host cell of claim 4 under conditions which promote expression of the polynucleotide and isolating polypeptide expressed in the cells.
- 25 6. A method for producing a cell expressing a MSG polypeptide comprising transforming or transfecting a cell with the vector of claim 3 so that the cell, under appropriate culture conditions, expresses a MSG polypeptide.

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A1T0333037641550
706 C1 7
20Sub
A2

7. A polypeptide encoded by the polynucleotide of claim
1.

8. An antibody which is immunospecific for the
polypeptide of claim 7.

5 9. A MSG for diagnosing mammary gland cancer comprising
a polynucleotide of claim 1 or a polypeptide encoded thereby.

10. A method for diagnosing the presence of mammary
gland cancer in a patient comprising:

(a) determining levels of a MSG of claim 9 in cells,
10 tissues or bodily fluids in a patient; and

(b) comparing the determined levels of MSG with levels
of a MSG of claim 9 in cells, tissues or bodily fluids from
a normal human control, wherein a change in determined levels
of MSG in said patient versus normal human control is
15 associated with the presence of mammary gland cancer.

11. A method of diagnosing metastases of mammary gland
cancer in a patient comprising:

(a) identifying a patient having mammary gland cancer
that is not known to have metastasized;

20 (b) determining levels of a MSG of claim 9 in a sample
of cells, tissues, or bodily fluid from said patient; and

(c) comparing the determined MSG levels with levels of
a MSG of claim 9 in cells, tissue, or bodily fluid of a normal
human control, wherein an increase in determined MSG levels
25 in the patient versus the normal human control is associated
with a cancer which has metastasized.

12. A method of staging mammary gland cancer in a
patient having mammary gland cancer comprising:

(a) identifying a patient having mammary gland cancer;

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(b) determining levels of a MSG of claim 9 in a sample of cells, tissue, or bodily fluid from said patient; and

(c) comparing determined MSG levels with levels of a MSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in determined MSG levels in said patient versus the normal human control is associated with a cancer which is progressing and a decrease in the determined MSG levels is associated with a cancer which is regressing or in remission.

10 13. A method of monitoring mammary gland cancer in a patient for the onset of metastasis comprising:

(a) identifying a patient having mammary gland cancer that is not known to have metastasized;

(b) periodically determining levels of a MSG of claim 9 in samples of cells, tissues, or bodily fluid from said patient; and

(c) comparing the periodically determined MSG levels with levels of a MSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in any one of the periodically determined MSG levels in the patient versus the normal human control is associated with a cancer which has metastasized.

14. A method of monitoring a change in stage of mammary gland cancer in a patient comprising:

25 (a) identifying a patient having mammary gland cancer;

(b) periodically determining levels of a MSG of claim 9 in cells, tissues, or bodily fluid from said patient; and

(c) comparing the periodically determined MSG levels with levels of a MSG of claim 9 in cells, tissues, or bodily fluid of a normal human control, wherein an increase in any one of the periodically determined MSG levels in the patient versus the normal human control is associated with a cancer which is

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labeled with paramagnetic ions or a radioisotope.

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conjugated to a cytotoxic agent.

20 or agonize the MSG polypeptide of claim 7 comprising:

polypeptide of claim 7 with a candidate compound; and

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of claim 20.

